IN THE CLAIMS

The following is a listing of the claims in accordance with 37 C.F.R. §1.121.

1. (previously presented) A transistor switch for a system operating at high frequencies, the transistor switch comprising:

a graded channel region between a source region and a drain region, the graded channel region configured for providing a low resistance to mobile negative charge carriers moving from the source region to the drain region; wherein the graded channel comprises at least two doping levels; and

a gate region extending along a side wall of the graded channel; wherein the gate region is directly in contact with a gate contact.

2. (original) The transistor switch of claim 1, wherein doping level at the source region is higher than doping level at the drain region.

3. (canceled).

4. (original) The transistor switch of claim 1, wherein the transistor switch is implemented using a wide bandgap material with a high thermal conductivity.

5. (original) The transistor switch of claim 4, wherein the wide band gap material is selected from the group consisting of silicon carbide, gallium nitride, aluminum nitride, boron nitride, and diamond.

6. (original) The transistor switch of claim 1, wherein the graded channel comprises three doping levels.

7. (original) The transistor switch of claim 6, wherein the doping levels of the graded channel are 1015 electrons/cm3, 1016 electrons/cm3, and 1017 electrons/cm3.

8. (original) The transistor switch of claim 1, wherein the doping level of the source region and the drain region is 5 x 1018 electrons/cm3 respectively.

9. (original) The transistor switch of claim 1, wherein the doping level of the gate region is 5 x 1018 holes/cm3.

10. (original) The transistor switch of claim 1, wherein the transistor switch operates at a frequency of at least 1MHz.

11. (original) The transistor switch of claim 1, wherein the transistor switch operates at a frequency of more than 68 MHz.

12. (original) The transistor switch of claim 1, wherein the breakdown voltage of the transistor switch is more than 60 Volts.

13. (original) The transistor switch of claim 12, wherein the breakdown voltage of the transistor switch is 210 Volts.

14. (original) The transistor switch of claim 1, wherein the transistor switch is implemented in high power generating systems.

15. (original) The transistor switch of claim 1, wherein the transistor switch comprises a static induction transistor.

16. (previously presented) A static induction transistor for a system operating at high frequencies, the static induction transistor comprising:

a graded channel region between a source region and a drain region, the graded channel region configured for providing a low resistance to mobile negative charge carriers moving from the source region to the drain region; wherein the graded channel comprises at least two doping levels, wherein doping level at the source region is higher than doping level at the drain region; and wherein a gate region extends along the sides of the graded channel, wherein the gate region is directly in contact with a gate contact.

17. (original) The static induction transistor of claim 16, wherein the graded channel comprises three doping levels.

18. (original) The static induction transistor of claim 17, wherein the doping levels of the graded channel are 1015 electrons/cm3, 1016 electrons/cm3, and1017 electrons/cm3.

19. (original) The static induction transistor of claim 16, wherein the doping level of the source region and the drain region is 5 X 1018 electrons/cm3 respectively.

20. (original) The static induction transistor of claim 16, wherein the doping level of the gate region is 5 X 1018 holes/cm3.

21. (original) The static induction transistor of claim 16, wherein the static induction transistor operates at a frequency of at least 1MHz.

22. (original) The static induction transistor of claim 16, wherein the static induction transistor operates at a frequency of more than 68 MHz.

23. (original) The static induction transistor of claim 16, wherein the breakdown voltage of the static induction transistor is more than 60 Volts.

24. (original) The static induction transistor of claim 23, wherein the breakdown voltage of the static induction transistor is 210 Volts.